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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.           | CONFIRMATION NO. |
|--|-------------|----------------------|-------------------------------|------------------|
| 09/842,022   | 04/26/2001  | Satoshi Tomioka      | SON-2077                      | 6904             |
| 23353  | 7590        | 04/29/2004           |                               |                  |
| RADER FISHMAN & GRAUER PLLC<br>LION BUILDING<br>1233 20TH STREET N.W., SUITE 501<br>WASHINGTON, DC 20036 |             |                      | EXAMINER<br>VARGOT, MATHIEU D |                  |
|  |             |                      | ART UNIT                      | PAPER NUMBER     |
|  |             |                      | 1732                          |                  |

DATE MAILED: 04/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/842,022

Applicant(s)

TOMIOKA, SATOSHI

Examiner

Mathieu D. Vargot

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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1. At page 4 of the specification, applicant discloses the elements which make up the substrate to be from the IIIB and VB groups, when in fact the rest of the specification would support the elements being from the IIIA and VA groups—ie, Ga is from the former group and N from the latter.

2. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, applicant refers to the elements which form the substrate being from the groups "IIIB" and "VB" when in fact the specification and claims as originally filed reveal them to be (apparently) --IIIA--and --VA--. Applicant should check the claims to ensure that the proper designations have been used in describing the elements that go into forming the substrate—see also the specification at page 4. Correction and/or clarification is required. Also, in claim 1, the curvature as set forth as ".03 cm<sup>-1</sup>" is vague as it is unclear if such constitutes a radius of curvature or not—ie, how much curve is occurring every .03 cm?

3. Sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Usui et al (see col. 2, lines 16-26; col. 6, line 49; col. 24, lines 5-12 and 42-58).

The applied reference discloses the basic claimed method of forming a substrate lacking at best a clear disclosure that the base would have a thickness equal to or smaller than 100 microns and that the deposited substrate would have a thickness

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equal to or greater than 200 microns while the curvature of the substrate would be smaller than .03 /cm. However, see in particular column 24, lines 42-58, which discloses that the base should have a thickness of less than half of the deposited substrate in order to prevent cracking in the substrate due to curvature. It would seem rather clear in Usui et al that the thickness of the base is limited by the thickness of the deposited substrate in order to limit cracking and curvature in the substrate at the expense (ie, cracking) of the base, which is exactly what applicant is doing. Given that the reference discloses thickness values for the deposited layer of 100-500 microns, it would have certainly been within the skill level of the art to make the layer greater than 200 microns, which would have led one of ordinary skill in the art to deduce from the disclosure of Usui et al that the base would be less than 100 microns in thickness. The curvature would have been expected to be very low and less than .03/cm. Ie, the instant numerical values for the thicknesses and curvature certainly would have been within the skill level of the art in Usui et al. The applied reference discloses doping a layer (col. 25, lines 36-38) with silicon in making certain semiconductor layers and such is nothing but conventional in the art. Usui et al also teaches removing the base layer by grinding or lapping (see column 24, line 47) and flattening the substrate (column 24, line 64— ie, "flatly applied"). It is submitted that the step of using a protective film over the substrate during the base removal would have been an obvious feature in the process of Usui et al to make sure the substrate is undamaged during the base removal.

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4. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

In view of the newly found art to Usui et al, it is submitted that applicant's comments directed to the previous rejection are now moot. Usui et al is clearly more closely directed to the instant invention and the exact thicknesses for the base and substrate would certainly have been obvious over the dimensions generally disclosed in the reference. Also, since the aim of the reference is to make a substrate layer with little curvature by using a very thick base, it is submitted that the instant degree of curvature would have likewise have been obvious over the teachings therein.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mathieu D. Vargot whose telephone number is 571 272-1211. The examiner can normally be reached on Mon-Fri from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianne, can be reached on 571 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Vargot  
April 26, 2004

  
Mathieu D. Vargot  
Primary Examiner  
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4/26/04